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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/633,874  | 08/04/2003  | Brian G. Johnson     | ITO.0047US (P16202) | 5272             |
| 21906   | 7590        | 04/10/2006           | EXAMINER            |                  |
| TROP PRUNER & HU, PC<br>8554 KATY FREEWAY<br>SUITE 100<br>HOUSTON, TX 77024 |             |                      |                     | DICKEY, THOMAS L |
|   |             | ART UNIT             |                     | PAPER NUMBER     |
|   |             | 2826                 |                     |                  |

DATE MAILED: 04/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                        |                     |
|------------------------------|------------------------|---------------------|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |
|                              | 10/633,874             | JOHNSON, BRIAN G.   |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |
|                              | Thomas L. Dickey       | 2826                |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 15 July 2005.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-7, 10-16, 18-24 and 26 is/are pending in the application.
- 4a) Of the above claim(s) 12-16, 18-24 and 26 is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1, 3-6 and 10 is/are rejected.
- 7) Claim(s) 2, 7 and 11 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 04 August 2003 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

|   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                    | Paper No(s)/Mail Date. _____.   |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____. | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|   | 6) <input type="checkbox"/> Other: _____.                                   |

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## **DETAILED ACTION**

1. The amendment filed 01/13/2006 has been entered.
2. Claim 10 has been rejected (see below) as indefinite. Applicant should note that in the paper mailed 08/15/2005, the same claim 10 was objected to for depending from a cancelled claim. In the interest of compact prosecution a "hypothetical" claim 10 has been searched for patentability. Said "hypothetical" claim 10 is identical to claim 10 as presented, except that "hypothetical" claim 10 depends from claim 1. Such a claim, were applicant to present it, would be allowable.

### ***Election/Restrictions***

3. Applicant's election of the Group I invention, claims 1-7, 10, and 11, in the reply filed on 1/13/06 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

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Claim 10 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

On its face claim 10 depends from cancelled claim 9. Claim 10 is therefore indefinite, because the language that would define part of its scope (the claim 9 language) is unavailable.

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 and 3-6 stand rejected under 35 U.S.C. 102(e) as being anticipated by LOWREY et al. (2004/0245603).

Lowrey et al. discloses a method comprising the steps of forming a substantially planar surface 106; forming a phase change material 250 between a pair 130A and 130B of horizontally spaced electrodes formed on said substantially planar surface 106, forming two (figure 2 shows three pairs) pairs 130A and 130B of said horizontally spaced

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electrodes for two spaced cells at the same time, and depositing a material 140 to form said horizontally spaced electrodes 130A and 130B in a trench 170; forming a conductive line 110 in a substrate 102 and forming said material 140 and said horizontally spaced electrodes 130A and 130B over said substrate 102; forming a (three are shown) selection device (MOSFET 114) in said substrate 102; and forming an electrical connection from said substrate 102 to a second electrode 270 by the step of electrically coupling said second electrode 270 to one of said horizontally displaced electrodes 130A and 130B. Note figures 2, 5A-O, and 6, and paragraphs 0039-0049 and 0052-0065 of Lowrey et al.

***Allowable Subject Matter***

6. Claims 2 and 7 and 11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Response to Arguments***

7. Applicant's arguments filed 1/13/06 have been fully considered but they are not persuasive.

It is argued, at page 2 of the 11/14/05 remarks, that "Claim 1 calls for 'forming two pairs of electrodes for two spaced cells at the same time.'" It is suggested that this is done (it is believed) in Figure 2 of the cited Lowrey reference, it being noted that there

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are three pairs 130a and 130b of horizontally spaced electrodes. In fact, there are three contacts 130a and three contacts 130b shown in Figure 2." Lowrey specifically discloses the electrode forming steps in figures 5D and 5e, where conductive layer 133 is patterned into separate horizontally spaced electrodes 130a and 130b. It is noted that the right side of figures 5D-E is marked with a jagged edge, a standard drafting tool to indicate, "more of the same may be found to the right of this portion." Figure 2 shows the final product with three of the cells fully illustrated. It should be noted that Lowrey specifically discloses a device having a large number of "spaced cells" (identified in figure 4 as parts 110).

It is argued, at page 2 of the remarks, that "The cited reference to Lowrey teaches a memory device 100 that comprises two independent single cell memory elements. The first single cell memory element comprises a first contact 130a, the memory material layer 250, and the second contact 270. This would correspond to the first stack in Figure 2 on the left. The second single cell memory element comprises a first contact 130b, memory material layer 250, and second contact 270. See the specification of the Lowrey patent at paragraph 33." However, the "cells" applicant points to are hardly "independent." They have a single memory material layer 250. In paragraph 0003 Lowrey explains what we are looking at in figure 1. Lowrey states, "Digital storage can be either binary (one bit per memory cell) or multi-state (multiple [2, for example] bits per cell)." Paragraph 0003. What we see in figure 1, as Lowrey explains again in paragraph 0033,

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is a cell having two memory elements sharing a single continuous volume of phase change memory material.

It is argued, at page 2 of the remarks, that "Certainly, the Examiner would agree that, for example, the contact 130a and the second contact 270 are not a pair of horizontally spaced electrodes formed on said substantially planar layer." Second electrode 270 is of course not horizontally spaced with either of the pair of horizontally spaced electrodes 130A and 130B. Second electrode 270 meets a different claim limitation.

In its most comprehensive form, Applicant's invention requires steps for forming three separate electrodes per cell, to wit:

- 1) The first one of "a pair of horizontally spaced electrodes." Note claim 1 line 3.
- 2) The second one of "a pair of horizontally spaced electrodes." Note claim 1 line 3.
- 3) "A second electrode." Note claim 5 line 2.

Lowrey discloses these self-same three separate electrodes:

- 1) Lowrey discloses the first one of the claimed "pair of horizontally spaced electrodes" as electrode 130A. Note figures 2 and 5A-O.
- 2) Lowrey discloses the second one of the claimed "pair of horizontally spaced electrodes" as electrode 130b. Note figures 2 and 5A-O.
- 3) Lowrey discloses the claimed "second electrode" as electrode 270. Note figures 2 and 5A-O.

### **Conclusion**

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas L. Dickey whose telephone number is 571-272-1913. The examiner can normally be reached on Monday-Thursday 8-6.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan J. Flynn can be reached on 571-272-1915. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



**Thomas L. Dickey  
Patent Examiner  
Art Unit 2826  
4/2006**